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DE 2610705



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File: DWPI

Sep 22, 1977

DERWENT-ACC-NO: 1977-69110Y

DERWENT-WEEK: 197739

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TITLE: Acid copper electroplating bath contains sulphonic acid - with thiourea and dithiocarbamic acid gps. and phenyl-thiourea deriv.

PATENT-ASSIGNEE:

ASSIGNEE

HENKEL &amp; CIE GMBH

IND &amp; PIPELINE SERV

CODE

HENK

INPIN

PRIORITY-DATA: 1976DE-2610705 (March 13, 1976), 1971DE-0146322 (April 26, 1977)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 2610705 A	September 22, 1977		000	
DE 2610705 B	February 2, 1978		000	
<u>FR 2343828 A</u>	November 10, 1977		000	
IT 1076315 B	April 27, 1985		000	

INT-CL (IPC): B08B 0/00; C25D 3/38

ABSTRACTED-PUB-NO: DE 2610705A

BASIC-ABSTRACT:

Acid Cu electroplating bath of conventional compsn. contains organic sulphic acid (I) or its water-soluble salt, with thiourea and dithiocarbamic acid gp(s), in the mol., and nonionic wetting agent (II), as in parent patent.

The novel (I) used is of formula (Ia) or  $(\text{Ph-NH-CS-NH-CH}_2\text{-CH}_2)_2\text{=N-CS-S-(CH}_2)_3\text{SO}_3\text{H}$  (Ib) in amts. of 2-20 mg/l. The bath also contains 1-20 ml/l thiourea deriv. (III) of the formula  $\text{R}_1\text{-C}_6\text{H}_4\text{-NR}_2\text{-CS-NHR}_3$  (in which  $\text{R}_1$  is H, OH,  $\text{NO}_2$ ;  $\text{R}_2$  is H, Me, Et;  $\text{R}_3$  is H, Me, Et, Ph). (II) is pref. an adduct of propylene oxide with polyalcohol or alkanolamine

Bath concn. (of brightener and leveller) can be reduced considerably. Bright level plating is obtd., even on long term operation at 50 degrees C. The bath has a wide temp. tolerance and the consumption of additives does not rise with ageing. In an example, the bath contained 210 g/l Cu sulphate crystals, 90 g/l conc. sulphuric acid, 100 mg/l Cl, 1 g/l (II), 6 mg/l (I) and 2 mg/l phenylthiourea.

TITLE-TERMS: ACID COPPER ELECTROPLATING BATH CONTAIN SULPHONIC ACID THIOUREA ACID GROUP PHENYL THIOUREA DERIVATIVE

DERWENT-CLASS: A97 E14 E16 M11 P43

CPI-CODES: A12-W12D; E10-A09B2; M11-A03; M11-B01;

CHEMICAL-CODES:

Chemical Indexing M3 \*01\*

=> s fr2343828/pn  
L1 1 FR2343828/PN

=> d all

L1 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2002 ACS  
AN 1977:574824 CAPLUS  
DN 87:174824  
TI Acid copper electroplating baths  
IN Michael, Gregor; Willmund, Wolf Dieter  
PA Henkel und Cie. G.m.b.H., Ger.  
SO Ger. Offen., 7 pp. Addn. to Ger. Offen. 1,146,322.  
CODEN: GWXXBX  
DT Patent  
LA German  
IC C25D003-38  
CC 72-6 (Electrochemistry)  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2610705	A1	19770922	DE 1976-2610705	19760313
	DE 2610705	C3	19781019		
	FR 2343828	A1	19771007	FR 1977-7251	19770311 <--
	FR 2343828	B1	19800208		
PRAI	DE 1976-2610705		19760313		

AB An acid Cu electroplating bath contains a sulfonic acid 2-20 and an additive of thiourea deriv. 1-20 mg/L, as well as a non-ionogenic wetting agent, such as the reaction product of 5-20 mol of propylene oxide with poly alcs. or alkanolamines with at least 3 hydroxyl groups per mol., which have a turbidity point >55.degree.. In an example, to the bath contg. C4 sulfate (cryst.) 220, concd. H2SO4 80, addn. product of 5 mol ethylene and 10 mol propylene oxide to glycerol 1.5 g/L, and Cl- 80 mg/L, were added 4 mg/L of the Na salt of

(PhNHC(:S)NHCH2CH2)2:NC(:S)S(CH2)3SO3H

and 2 mg/L of N-methyl-N-phenylthiourea. At a c.d. of 1-8 A/dm2 and temp.

.ltoreq.50.degree., the bath gave a smooth, bright Cu plate with 85% leveling at an initial roughness depth of 0.8 .mu.m and 25 .mu.m Cu overlayer. The use of these additives does not accelerate the aging of the bath.

ST copper acid electroplating bath; sulfonic acid copper electroplating; thiourea deriv copper electroplating

IT Sulfonic acids, compounds

RL: PRP (Properties)

(in electroplating, of bright acid copper)

IT 7440-50-8, uses and miscellaneous

RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(electroplating of, acid baths for)

IT 56-81-5D, reaction product with ethylene- and propylene oxide 62-56-6D, derivs. 75-21-8D, reaction product with glycerol and propylene oxide 126-58-9D, reaction product with propylene oxide 64700-74-9

64700-75-0

RL: PRP (Properties)

(in electroplating, of bright acid copper)

IT 4104-75-0

RL: PRP (Properties)

(in electroplating, of bright copper in acid baths)

IT 103-85-5